

Using Computer Software to Enhance Moral Education

by
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Introduction

The violence in our schools is of great concern to all members of our society. Parents and educators are searching for the causes of violence and solutions for the problem. Our media-dependent culture subjects the average child to a minimum of 100,000 acts of violence as well as over 8,000 murders on television by the time they have exited elementary school (Smith, 1993). Consequently, children exposed to a barrage of violence are more likely to engage in aggressive and hostile behaviors (Smith, 1993). A National Institute of Education study, *Violent Schools-Safe Schools*, documented that the risk of being subjected to personal violence was more likely at school than any where else (Gaustad, 1991). Another great concern of our society is that violence is often perpetrated by gangs. The presence of gangs in our society, although not new, is often blamed not only for the violence in the schools, but also for the moral decline of our children.

An effective strategy for combating violence is to implement a moral and ethical education curriculum which include values clarification (Burnett, 1994). Computer technology can be combined when presenting learning opportunities to children. It is an engaging form of technology that children enjoy using, but it is not simply a motivational tool. Norman (1993) tells us that

Through technology, we develop external representations and systems that join with our cognitive abilities to provide skills far beyond what can be accomplished through the unaided mind.

Using the technology of computers can not only stimulate a student's interest in learning; computers, as a discourse form, may enhance learning by increasing problem solving abilities in students (Norton, 1985). This study compared the effectiveness of utilizing computer software within a moral education curriculum versus conventional

methods to increase empathy, vocabulary, and verbal communication skills of first graders in an early education classroom.

Background

Moral Development Stages

Lawrence Kohlberg built upon the work of Jean Piaget in the analysis and definition of moral stages of development. Interviews of subjects were conducted by presenting a moral dilemma story, discussing their solutions and determining *why* and *how* someone made their moral decisions. It is that reasoning which defines a person's stage in moral development. Kohlberg was less concerned with *what* the subject thought was right. At the end of his 20 year study he and his colleagues were able to make some generalizations about the stages previously identified. Cognitive development as well as moral development are intertwined and work together throughout the development of children.

Piaget identified stages of human cognitive development and Kohlberg's work extended that work by investigating the relationship between chronological age and moral development. Chronological age impacts the ways that children think about moral questions. Their thinking becomes more complex as they integrate more aspects of all situations (Ryan, 1981). Refer to Figure 1 for Kohlberg's six stages of moral thinking.

Ninety-three percent of Kohlberg's participants showed upward growth in all the stages. The development in stages was slow and took a period of time of at least 3 years to move to an higher stage of moral development. No subject ever reached stage 6, and stage 4 was the usual end stage of development. It is important to note that Kohlberg reported that children, as well as adults, are able to comprehend moral reasoning at one or two stages above their own stage (Lickona, 1983). Figure 2 shows the age and relative percentage of moral judgments based on the levels of moral development. Most of the first grade students were expected to fall within the preconventional stage of moral development.

Figure 1
Kohlberg's Stages of Moral Thinking

Level A: Preconventional

Stage One: Punishment or Reward Orientation

(Individual avoids punishment.)

Stage Two: Instrumental-Relativist Orientation

(Individual uses practical, reciprocity morality.)

Level B: Conventional

Stage Three: Good Boy-Nice Girl Orientation.

(Individual seeks to earn approval from others.)

Stage Four: "Law and Order" Orientation

(Individual respects law and order for the social good.)

Level C: Postconventional

Stage Five: Social Contract and Individual Rights Stage

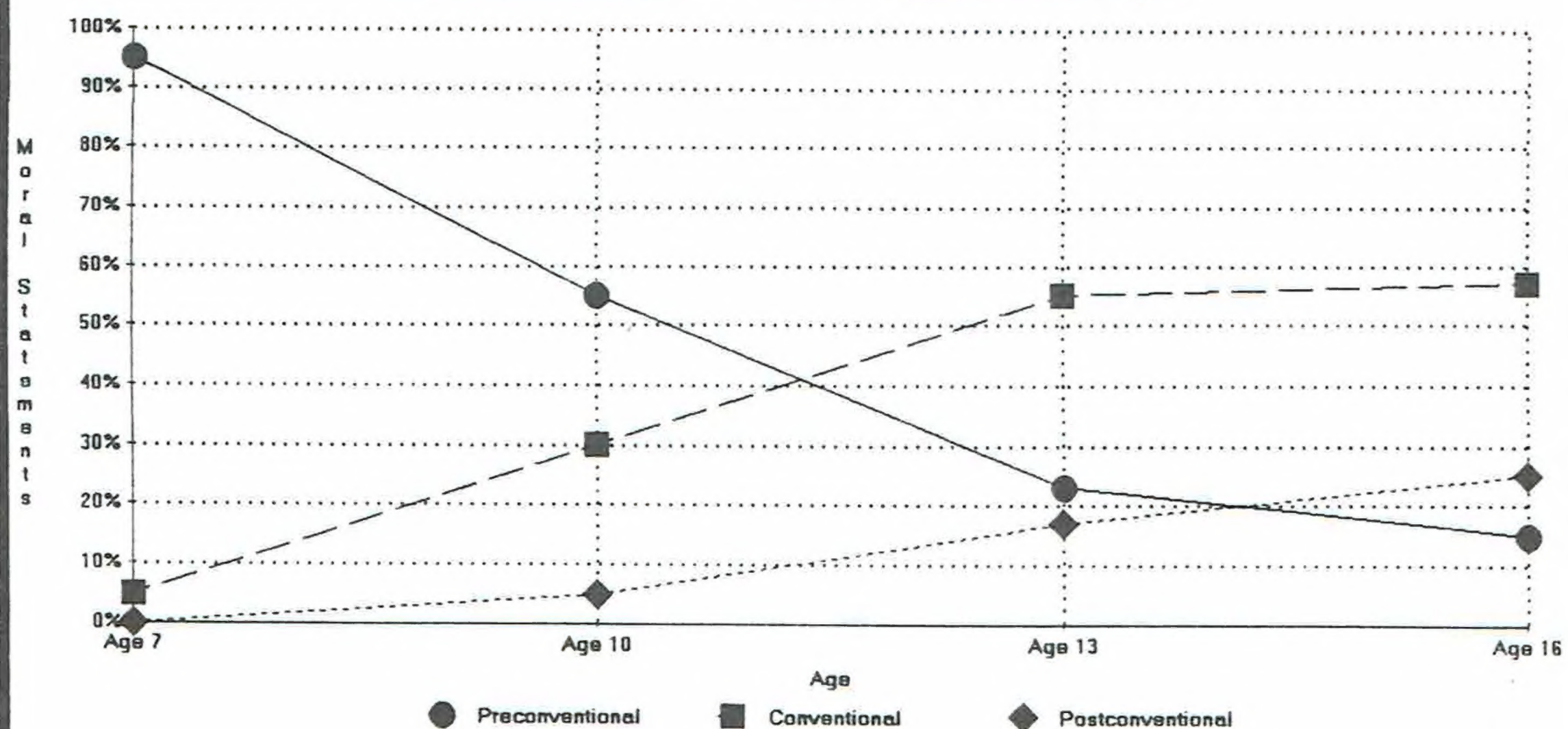
(Individual's personal values are relative, the primary concern is for societally accepted standards)

Stage Six: Universal ethical principle orientation.

(Individual defines "right" by using self chosen principles)

(Adapted from Gage, 1988)

Figure 2
Ages and Moral Development Stages



(Gage, 1988)

Definition of Moral Education

What is moral education? There are many definitions to not only the word "moral", but to the word "education". For the purposes of this study, the definition for moral education was: that which a teacher does directly to affect students' abilities to not only think about issues of right and wrong behavior, but to also affect their ethical behavior as well as to increase their empathy, respect, and caring towards others. Moral ideals must contain a genuine concern for others. This concern for the welfare of others requires the use of not only cognitive skills but also the ability to extend past one's own selfish desires. (Damon, 1988)

Cognition and Multiple Intelligence Theory

Many educational psychologists have conducted research and developed theories about the developmental process. The works of Piaget and Bruner describe stages of development and intellectual functioning. The work of Vygotsky further illuminates the theories of psychologists by including the vital aspect of social interaction with cognition. Vygotsky (1978) also speaks of the "zone of proximal development" which is the difference between what the child is capable of doing with adult help and a child's actual developmental stage, where a child works independently without adult help. He also says that instruction should precede development. It is the role of the teacher to guide children through their zone of proximal development through the use of social interaction to help them mentally construct complex and abstract concept frameworks. Individual knowledge is constructed through social interaction.

This project utilized the concept of mixed-age peer relationships which provided these early learners with the important peer interaction to improve the moral and cognitive development of both learners and tutors. The interactivity of the computer software along with the peer tutors contributes not only to the social-cognitive and language development of the younger child, but also enhances the instructive abilities of the older child (Hartup,

1983). Research has shown that there is a long lasting benefit for children when they have positive peer interactions and relationships (Oden, 1986).

According to Gardner (1983), the ability to socially interact is another skill that is developed and created by children through the use of interpersonal skills. Gardner calls this intelligence the personal intelligences which includes knowledge of others and of self. By the time children enter first grade, they have a good distinction between themselves and others. They continue to be egocentric, but their egocentrism is fading which provides excellent opportunities for them to construct knowledge about individual perception and empathy for others.

Empathy

Empathy is the ability to determine another's point of view with regard to thoughts and feelings. Although empathy is generally considered to be a feeling, there is a definite cognitive component. As children mature, their ability to take a viewpoint towards life, other than their own, increases as cognition develops sophistication. The cognitive and affective ability to empathize may direct children to participate in charitable and benevolent behavior in later life. (Damon, 1988) Although it is clear that having a moral understanding and empathy towards others in abstract situations does not necessarily lead to moral action; still the ability to empathize and intellectually "know" respectful, caring action is still a pre-requisite to applying those mental skills to real-world action. The development of these cognitive and affective skills converge to create a growing moral awareness.

Moral Education and the "Character Counts Coalition"

One goal of moral education curriculum, currently under development in a variety of methods across the United States, is to create moral awareness. The Aspen Foundation has formed the "Character Counts Coalition" to implement a moral education curriculum based on the standards of "The Aspen Declaration". Their declaration states:

1. The next generation will be the stewards of our communities, nation, and planet in extraordinarily critical times.
 2. The present and future well-being of our society requires an involved, caring citizenry with good moral character.
 3. People do not automatically develop good moral character; therefore, conscientious efforts must be made to help young people develop the values and abilities necessary for moral decision making and conduct.
 4. Effective character education is based on core ethical values which form the foundation of democratic society, in particular, respect, responsibility, trustworthiness, caring, justice and fairness, and civic virtue and citizenship.
 5. These core ethical values transcend cultural, religious, and socio-economic differences.
 6. Character education is first and foremost, an obligation of families; it is also an important obligation of faith communities, schools, youth and other human service organizations.
 7. These obligations to develop character are best achieved when these groups work in concert.
 8. The character and conduct of our youth reflect the character and conduct of society; therefore, every adult has the responsibility to teach and model the core ethical values and every social institution has the responsibility to promote the development of good character.
- (Aspen Foundation, 1992)

A curriculum called "Character Counts" is individually developed at each school site using input from the school's local community. Groups of teachers create a curriculum based on the "Six Pillars of Character" (respect, responsibility, trustworthiness, caring, justice, and citizenship). Schools select the order of presentation to their students. One word is the entire school focus for a month in classroom discussions and activities with three or four months available to review previous focus words. During the course of this study two words were the school's focus: respect and citizenship.

Computers in the Early Childhood Classroom

Literacy is a main focus of early childhood classrooms. The question arises: What is literacy? Many teachers of young children focus on print literacy. There is no question that young children need to acquire print literacy, but there are other forms of literacy that children need opportunities to experience. We are living in a technologically advancing culture that requires literacy in computer technology. Norton (1985) advises that our culture uses computer technology to convey information about individuals and society as well as to achieve business and social tasks. In order for children to successfully interact with computers as tools, those tools need to be integrated into all aspects of curriculum. The use of simulations gives children opportunities to experience multiple outcomes based on decisions made. The use of simulations in the classroom is a powerful tool. Simulations create a smaller world where children can play and explore cause-effect relationships creating a bridge between abstract concepts and hands-on experiences. These experiences with simulations help children explore complex problems and results of possible solutions (Norton, 1985).

Statement of the Problem

It is important for children to become active, responsible, caring citizens in a democratic society. This study investigated the effects of two methods of moral education instruction. The first utilized traditional methods of instruction including literature, dramatic play, and thinking games. The second included traditional methods along with computer simulation software designed to help students raise their social awareness and improve their problem solving skills needed to make insightful choices and to consider the consequences of their actions.

Questions

The following questions framed this study:

1. Does the use of computers enhance young children's understanding of moral terms such as respect, caring, voting, choices and citizenship?
2. Will young children's stage of moral development be affected by the use of computer software designed to simulate moral dilemmas?
3. Does the use of peer tutoring improve young children's attitudes towards collaboration?
4. Are young children's attitudes toward using computers as learning tools affected with the use of simulation software designed to simulate moral dilemmas?

Methodology

Design

This study used an experimental design with pre and post tests to determine understanding of moral terms. Subjects' stage of moral development were assessed before and after the treatment using Kohlberg's guidelines. Attitudinal surveys were also given before and after the treatment.

Subjects

Seventeen first grade students with ages ranging from six to seven years old in a regular education classroom from an urban southwestern elementary school were selected for this study. Subjects were randomly selected and balanced by gender. Names of students were written on slips of paper and separated by gender then drawn from a hat. Subjects in the control group (Group A) acted as "Reading Buddies" for Kindergarten students (See Appendix 1 for complete descriptions). Peer tutors for the treatment group (Group B) were selected from a special education classroom (B-Level Enrichment) by their special education teacher.

Instrumentation

Three methods of instrumentation were used before and after treatment to analyze the results of this study. They included researcher interviews of children defining moral terms: respect, caring, voting, choices and citizenship. The researcher evaluated children's definitions using an analysis form (see Appendix 2). Moral dilemmas (see Appendix 3 of the dilemma stories) were presented to subjects by the peer tutors. Their solutions and responses to the moral dilemma stories were video taped. The video tape was analyzed using a video tape analysis form (see Appendix 4) by the researcher/teacher. An 10 item attitudinal survey on a Likert scale (see Appendix 5) was given to the subjects by the researcher/teacher. These evaluations were conducted on three separate days. The initial assessments were conducted during the first two weeks prior to treatment. The final assessments were completed the last week of the study.

The definition of moral terms interviews were conducted by the researcher/teacher. The children were asked to define the terms respect, caring, voting, choices and citizenship. Their responses were analyzed using an analysis form (see Appendix 2) to determine the accuracy of their definitions and familiarity of moral terms.

Subjects were video taped while they were read stories selected by the researcher/teacher that present a moral dilemma. They were asked to describe how the characters in the stories felt and what solutions might be employed to solve the dilemmas. Based on their responses they were asked why they thought their solution was good. They were asked if there was any other solution to the problem and subsequent questions were asked to determine their thinking behind their solution (see Appendix 3). One moral dilemma was presented that could occur in school on the playground. A video tape analysis form were used to collect data from the interviews. The obvious dangers of having young children respond to moral dilemmas in a way that they "believe" the

researcher/teacher prefers is somewhat overcome by having mixed age peer tutors read the dilemmas and subsequent probing questions of the younger students.

The researcher/teacher conducted attitudinal surveys of the subjects by giving them the form to complete and showing an identical form on an overhead projector. The researcher prepared surveys consisted of 10 questions using a Likert scale. The researcher/teacher read the questions to the children and provided enough time for each child to mark their responses on the survey. The survey was designed to determine student's attitudes towards established friends and possible new friends. Secondly, the survey was geared to determine students' attitudes towards using computer software. The final questions on the survey asked the subjects how much they enjoy working with older students in learning activities and discussing concepts.

Treatment

The materials for this study consisted of an Apple IIe computer and software from Tom Snyder Productions, "On The Playground". Students in a special education classroom (B-Level Enrichment) were used as peer tutors for the pre and post tests for both groups. The peer tutors also assisted the subjects in Group B as they interacted with the software. The assignment of peer tutors was made by the special education teacher. The assessment using a moral dilemma was video taped. The researcher/teacher also conducted vocabulary interviews. The researcher/teacher also conducted the attitudinal surveys with the whole class after reviewing the terms: always, usually, sometimes and never with the class before the subjects completed the surveys.

The software, "On The Playground" simulation began with the presentation of a problem concerning a new student in school on the playground. Students worked through this dilemma and encountered a variety of other difficult situations. The simulation led the students through the issues. There were consequences for each of the five decisions the students can select. 300 combinations of possible solutions that students chose, with

appropriate outcomes exist within the simulation. The same choice did not always result to the same outcome. There were no right or wrong answers to "win" the game.

Procedure

Training of peer tutors who conducted the pre and post interviews about moral dilemma stories and who assisted the subjects in Group B with the simulation software occurred prior to the beginning of the study. They received instruction from the researcher/teacher in reading the dilemma stories and the follow up questions that were used to gain the information regarding moral development stages (see Appendix 3 for follow up questions to moral dilemma stories). The Reading Buddies, subjects in Group A, also received instruction in how to select a book for their Kindergarten buddy and how to discuss the story with the younger student. They were also instructed in methods to teach the Kindergarten buddy how to read. Specifically they used techniques in reading strategies such as reading using top to bottom and left to right progression.

Before the study began, both subject groups were exposed to standard school-wide adopted "Character Counts" educational curriculum for first grade including the word "respect". Subjects were sorted by gender and randomly assigned to either the control group (Group A) or the treatment group (Group B). Names of students were written on slips of paper and separated by gender then drawn from a hat. Attitudinal surveys and vocabulary interviews were conducted by the researcher/teacher during the first and second weeks of the study.

During the first week of the study, the students were introduced to the peer tutors and participated in an activity designed to help the first graders get to know the peer tutors. The activity involved matching the peer tutors with randomly assigned first graders. They spent approximately 10 minutes talking together. Each student introduced the member(s) in the group and told the classes one thing about someone in their group. The peer tutors conducted dilemma story interviews with all subjects over the period of five days,

beginning with the Group A subjects. The special education teacher video taped the interviews.

While Group B students were interviewed and video taped, the Group A students met their Kindergarten Reading Buddies. Group A students selected a book from the first grade classroom library and read it to the Kindergartners.

Students were randomly assigned to groups. One group (Group B) interacted with the computer software in the classroom over a six week period of time, while the other group was in their own classroom participating in an alternate activity.

During weeks two through five of the study students in Group A continued with their reading buddy activities with the kindergarten students. Students in Group B continued to meet with their peer tutors and interacted with the software, "On The Playground". Whole classroom activities included (See Appendix 1 for detailed descriptions of activities):

1. Random Acts of Kindness
2. Apple of my eye Compliments
3. Fund-Raising Dilemma Story
4. "Character Counts" group discussions on the words respect and citizenship
5. Citizen of the Week Bulletin Board
6. Thinking games e.g., "How Many Kinds of Kindness?"

The classroom activities that included both groups involved reading literature which presented moral dilemmas and coming up with group decisions. Children role-played different characters in the stories by dramatizing them. Children discussed examples brought up by other children. Children sorted and classified different groups of people explaining their reasons for the particular groupings. Children, with the aid of dolls, played thinking games such as "How Many Kinds of Kindness". The children will also read, created, shared, and wrote stories about "Random Acts of Kindness".

The final week of the study included posttests of vocabulary interviews, and final attitudinal surveys of both groups. Group B had their interviews of moral dilemmas presented by the peer tutors video taped.

Results of the vocabulary interviews and moral dilemmas were analyzed using a researcher prepared analysis form. The attitudinal surveys were compiled and analyzed. Data from all assessment tools were analyzed.

Organization of Study

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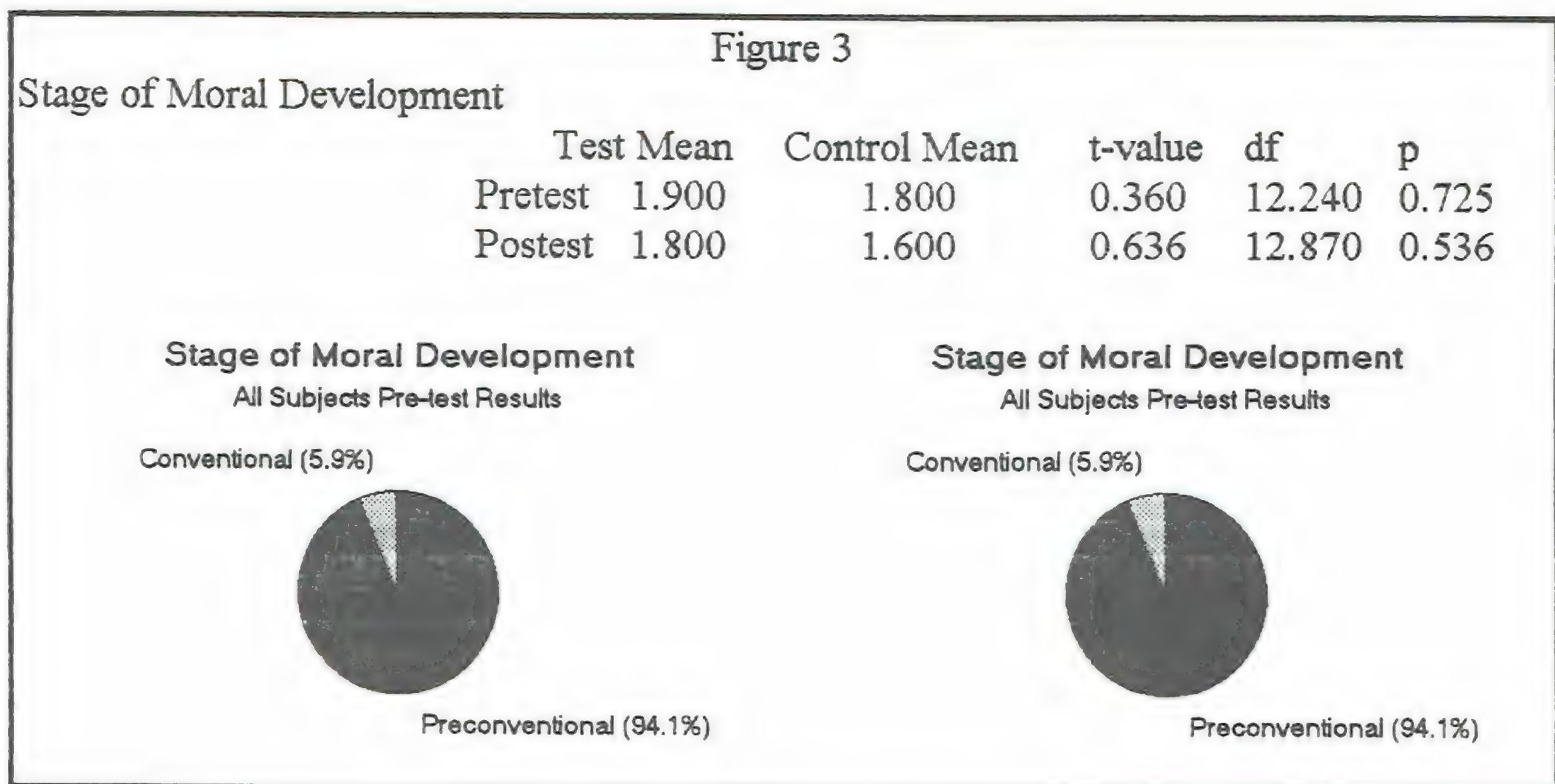
Date (week)	Whole Group Activity	Group A Activity (control group)	Group B Activity (test group)
9/11/95 (week 1)	Read <u>Random Acts of Kindness</u> (RAK) Created RAK stories Illustrated others' stories Pretested by Researcher/Teacher	Introduced Kindergarten Reading Buddies Pretested with Tutors	Introduced Peer Tutors Pretested with Tutors
9/18/95 (week 2)	Apple of my eye Compliments	Reading Buddies	Began Software Activities
9/25/95 (week 3)	Fund raising dilemma story	Reading Buddies	Continued Software Activities
10/2/95 (week 4)	Character Counts word of the month: Citizenship - group discussion	Reading Buddies	Continued Software Activities
10/16/95 (week 5)	Began Citizen of the Week bulletin boards	Reading Buddies	Continued Software Activities
10/23/95 (week 6)	How Many Kinds of Kindness? Posttested by Researcher/Teacher (see Appendix 1 for complete descriptions of activities)	Posttested by Tutors	Completed posttests by Tutors

Results

A total of 17 children participated in this study. Table 1 shows that the average age of all participants was 6 years. There were 6 males and 3 females in the control group. The treatment group consisted of 4 males and 4 females.

Table 1 Demographic Information		
	Control Group Group A	Treatment Group Group B
Average Age	6.11	6
Male	6	4
Female	3	4

Moral dilemma stories were used to evaluate the stage of moral development, both pre and posttest. The moral development stages for each child were defined and compared between the two groups using a t-test statistical analysis. Figure 3 shows that the stage of moral development in both groups was consistent with expectations (See Figure 2).



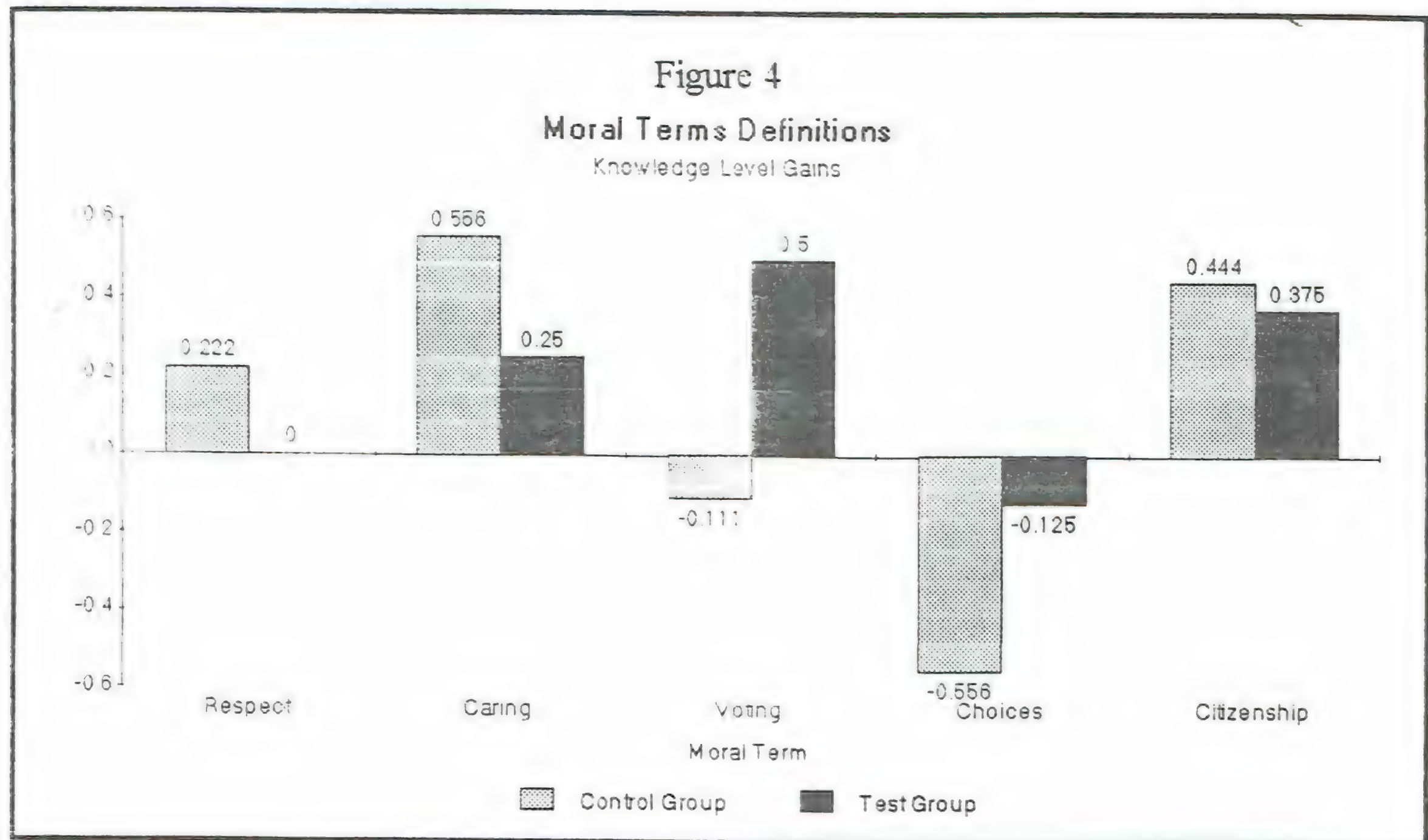
The majority of participants were evaluated to be within the preconventional stage of moral development for both the pre and posttests. Only one student demonstrated

vocabulary and problem solving strategies that represented the conventional stage of moral development.

Pre and posttest data were analyzed to address the central question of the research: Does the use of computers enhance young children's understanding of moral terms such as respect, caring, voting, choices and citizenship? Understanding of moral terms was compared per term between each group both before and after the study. Table 2 represents the research findings on all questions this study addresses.

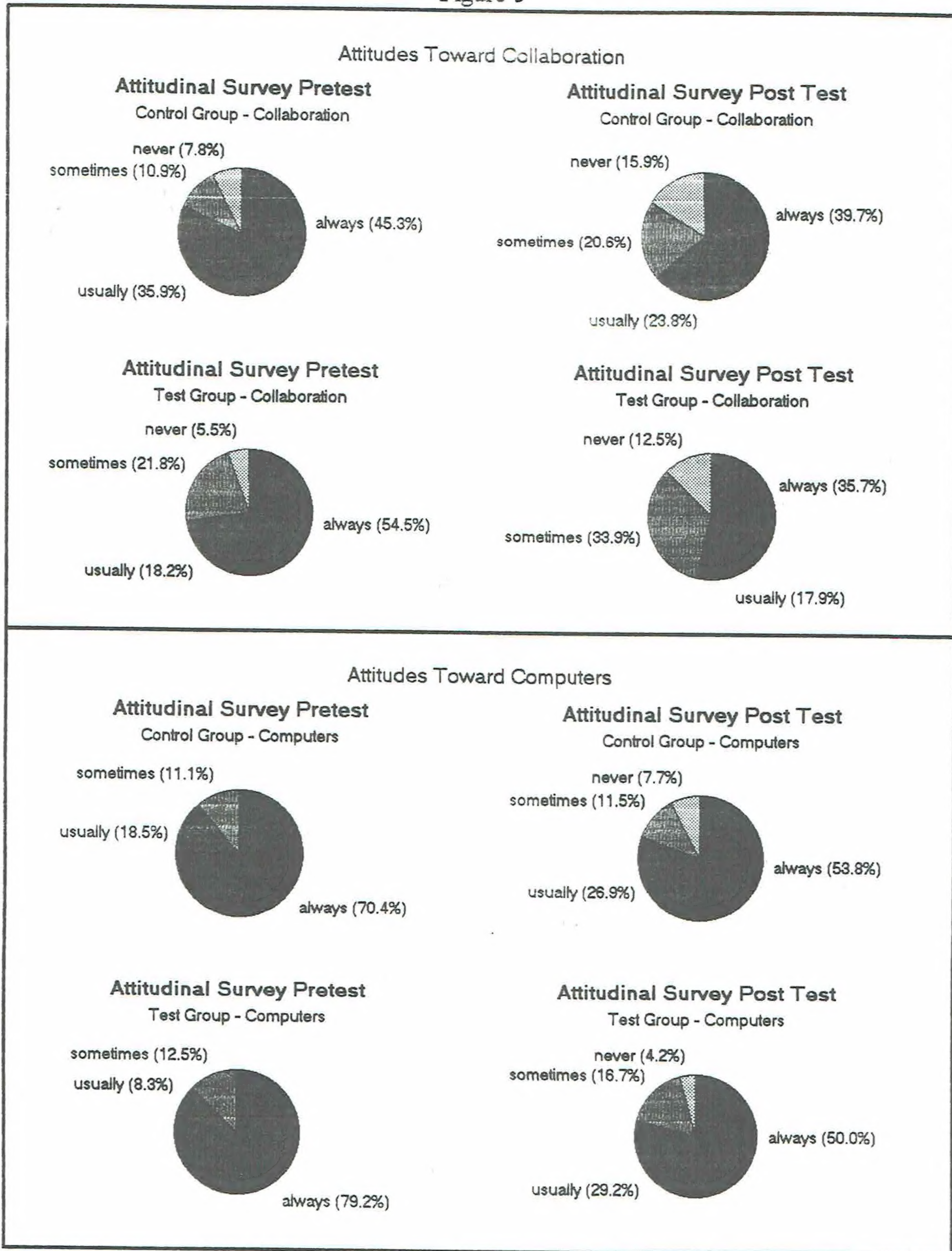
Table 2						
Moral Terms Definitions						
	Test Mean	Control Mean	t-value	df	p	
Pretest	2.150	2.000	0.707	15.000	0.490	
Posttest	2.350	2.110	0.921	13.000	0.374	
Attitudes toward Collaboration						
	Test Mean	Control Mean	t-value	df	p	
Pretest	3.214	3.190	0.092	14.070	0.928	
Posttest	2.768	2.873	-0.316	15.000	0.757	
Attitudes toward Computer Use						
	Test Mean	Control Mean	t-value	df	p	
Pretest	3.665	3.592	0.358	15.000	0.725	
Posttest	3.249	3.186	0.202	12.640	0.843	
Stage of Moral Development						
	Test Mean	Control Mean	t-value	df	p	
Pretest	1.900	1.800	0.360	12.240	0.725	
Posttest	1.800	1.600	0.636	12.870	0.536	

Most students were able to demonstrate at least some understanding of the moral terms. Figure 4 shows that knowledge gains represented by moral term definitions were present in both groups, but slightly higher in the test group.



Secondary questions of this study involved children's attitudes: Does the use of peer tutoring improve young children's attitudes towards collaboration? Are young children's attitudes toward using computers as learning tools affected with the use of simulation software designed to simulate moral dilemmas? Pre and Posttest attitudinal data were averaged for each group. Results for these questions are represented graphically in Figure 5. According to the data collected, children's attitudes appeared to become more negative in both areas of collaboration and computer usage.

Figure 5



Discussion

The data reveals no significant differences in all measures. The results show that most participants did not have understanding of the term citizenship at the beginning of the study. Their understanding and ability to define this term by the completion of this project increased in both test and control groups. Gains in understanding and defining the term caring also increased in both groups. There was a loss in understanding of the term choices by both groups, but notably greater in the control group. Conversely, the control group had more notable gains in the definition of the term respect. However, the test group showed better understanding of the term voting. (see Figure 4.) These results are not surprising when the age and associated developmental stages of the children are understood. Children in early childhood are consistently erratic in their abilities to define terms. There are many other factors that can be attributed to the phenomena. Children at an early stage in linguistic verbal development frequently are distracted by environmental concerns that can affect their ability to define terms.

The researcher was initially concerned with the data which showed that attitudes for the children with regard to collaboration and computer usage moved from a very positive view to a less than positive view. This result was easily understood when the age of the children and their abilities to be reflective was considered. Young children frequently have a desire to "please" adults they work with and the researcher believes that the overwhelming positive responses in the pretests on the attitudinal surveys (No child selected "never" in the attitudes toward computers questions.) was diminished by the posttests because the children were becoming more thoughtful and reflective about their opinions.

A holistic analysis of all questions and methodologies used leads the researcher to believe that an interdisciplinary approach when offering learning opportunities is the most effective approach for young children. The study itself was of such short duration that the

results may not be indicative of the true value of using simulation computer software in an early childhood classroom learning environment. Future study should include a longer duration for the use of computer software with further distinction of experimental groups. The study may also be more representative of learning objectives if the children are posttested at a later stage of development when the ability of reflection are more pronounced. Using a variety of simulation games may also enhance the results of this study.

It is imperative that children receive some opportunities to learn moral values that our society considers necessary to have a competent, caring society of individuals. All children do not have such opportunities in their lives beyond the school environment. A bright path of enlightenment toward a caring, compassionate civilization can be found through moral education and values clarification. Educators must use every tool afforded to them to find that path and enable children to become positive contributors to a violent-free society.

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